

AMENDMENTS TO THE CLAIMS

Claims 15 - 27 were pending. Please amend the claims by adding new claims 28-32 and canceling claims 26-27, without prejudice, as indicated on the following listing of all the claims in the present application after this Amendment:

1.-14. (Cancelled)

15. (Previously Presented) A method of charging a wordline of a memory array to a predetermined voltage and maintaining the voltage on the wordline, comprising:

increasing voltage from a base voltage to an output voltage by means of a charge pump having one or more stages;

detecting the voltage on the wordline and returning a signal to the charge pump when the wordline reaches a predetermined voltage; and

reducing the capacitance used in one or more stages of the charge pump in response to the signal to provide a reduced current output from the charge pump to the wordline.

16. (Previously Presented) The method of claim 15 wherein the wordline has a leakage current and the reduced current is approximately equal to the leakage current.

17. (Previously Presented) The method of claim 15 wherein the stage contains two or more capacitors and the capacitance is reduced by disabling one or more capacitors.

18. (Previously Presented) The method of claim 15 further comprising reducing a voltage used in one or more stages in response to the signal.

19. (Previously Presented) A method of charging a wordline to a predetermined voltage and maintaining the predetermined voltage on the wordline by:

increasing voltage from a base voltage to an output voltage by means of a charge pump;

detecting a voltage on the wordline and returning a signal to the charge pump when the wordline reaches the predetermined voltage; and

reducing a voltage used in one or more stages of the charge pump in response to the signal.

20. (Previously Presented) The method of claim 19 wherein the reduction in the voltage used causes a reduction in the current output from the charge pump.

21. (Previously Presented) The method of claim 20 wherein the voltage is reduced from a first voltage that causes the charge pump to provide a first current to a second voltage that causes the charge pump to provide a second current, the second current being approximately equal to a leakage current from the wordline.

22. (Previously Presented) A wordline voltage control system for raising a voltage of a wordline to a predetermined voltage and maintaining the voltage of the wordline at the predetermined voltage, comprising:

a wordline extending across a portion of a non-volatile memory array; and
a charge pump connected to the wordline to deliver current from the charge pump to the wordline, the charge pump including a stage that has variable current output according to a variable capacitance in the stage.

23. (Previously Presented) The system of claim 22 wherein the variable capacitance is controlled in response to the voltage of the wordline.

24. (Previously Presented) The system of claim 22 wherein the variable capacitance has a selectable first capacitor to provide a first current from the charge pump and a second capacitor to provide a second current from the charge pump.

25. (Previously Presented) The system of claim 24 wherein the first current is used to charge the wordline and the second current is used to maintain the wordline at the predetermined voltage.

26-27. (Canceled)

28. (New) The system of claim 25 wherein the size of the second capacitor is selected to provide the second current, the second current equal to the leakage current of the wordline when the wordline is at the predetermined voltage.

29. (New) A wordline voltage control system for raising a voltage of a wordline to a predetermined voltage and maintaining the voltage of the wordline at the predetermined voltage, comprising:

a wordline extending across a portion of a non-volatile memory array; and
a charge pump connected to the wordline to deliver current from the charge pump to the wordline, the charge pump including a stage that has variable current output according to a variable capacitance in the stage, wherein the variable capacitance has a selectable first capacitor to provide a first current from the charge pump and a second capacitor to provide a second current from the charge pump, and the first capacitor is controlled by a driver circuit and the driver circuit is protected by a driver protection circuit.

30. (New) The system of claim 29 wherein the driver circuit is an adaptive driver circuit that provides voltage to the first capacitor at a selectable voltage level.

31. (New) The system of claim 29 wherein the second current is approximately equal to a leakage current of the wordline.

32. (New) The system of claim 29 wherein the driver circuit is responsive to a voltage detected on the wordline.